

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

REC'D 29 SEP 2004

WRITTEN OPINION ON THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

22-09-2004

Applicant's or agent's file reference

W 5040-002 LK/md

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/SE 2004/001214

International filing date (day/month/year)

19-08-2004

Priority date (day/month/year)

21-08-2003

International Patent Classification (IPC) or both national classification and IPC

F26B3/30

Applicant

Eriksson Kertu et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further opinions, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/SE

Patent- och registreringsverket

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Form PCT/ISA/237 (cover sheet) (January 2004)

WRITTEN OPINION OF THE  
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International application No.

PCT/SE 2004/001214

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/SE 2004/001214

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	7-10, 12-14, 17 and 18	YES
	Claims	1-6, 11, 15, 16 and 19	NO
Inventive step (IS)	Claims		YES
	Claims	1-19	NO
Industrial applicability (IA)	Claims	1-19	YES
	Claims		NO

**2. Citations and explanations:**

The object of the invention concerns a method and apparatus for dehumidifying different material, primarily sewage sludge.

The following documents are cited in the International Search Report:

D1: WO 0237043 A1  
D2: US 5678323 A  
D3: WO 8808949 A1  
D4: FR 2695196 A1

D1 reveals a method and an apparatus for drying wood (3). The drying takes place in a closed drying chamber (1) with the aid of elements (2) which emit radiation energy. The radiation is of such wavelength that it is absorbed by the water molecules in the wood, while the remainder of the wood is substantially unaffected. (See abstract.)

D2 shows a method and drying apparatus for drying a quantity of sludge with a plurality of infrared emitters. The thermal drying of the sludge is controlled with radiant energy and the wavelengths of the radiant energy produced the infrared emitters are in the range between 2,5 and 3,5 microns. (See abstract and claims 1-3.)

D3 describes a method and an apparatus for drying planar material, e.g., wood sheet. In accordance with the method, the main drying phase is implemented by subjecting the material to heat energy exposure, and the moisture content of material to be dried is measured prior to and/or after the main drying phase. .../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V (1 of 3)

In accordance with the invention, material identified in the measurement to be of the highest moisture content is exposed to a first IR radiation with its wavelength of maximum intensity approximately coincident with the wavelength of maximum absorption in water; immediately after the first exposure the material to be dried is exposed to a second IR radiation of a shorter wavelength than the wavelength of maximum intensity in the first radiation; and the energy doses imposed on the material to be dried by both the first and the second radiation are adapted to be at least approximately equal in magnitude. (See abstract.)

D4 relates to a procedure for drying paint, which uses absorption of infrared radiation with wavelengths lying outside the visible range. The radiation is produced by electrically heating a conductor placed against a surface, which is selectively absorbent to certain wavelengths of radiation. (See abstract.)

D1 and D2 represent the most relevant prior art.

D1 reveals a method and apparatus for drying wood (3). The drying takes place in a closed drying chamber (1) with the aid of elements (2) which emit radiation energy. The radiation is of such wavelength that it is absorbed by the water molecules in the wood, while the remainder of the wood is substantially unaffected. The method characterized in that the radiation is concentrated to exact wavelength ranges where the water has absorption coefficient greater than approx.  $1,000\text{cm}^{-1}$ , while the radiation is reduced in other areas and to the wavelength ranges of approx. 6-7 and approx. 10-20 micrometer, while the radiation in the intermediate range, i.e. approx. 7-10 micrometer is reduced. (See abstract and claims 1-3.)

Consequently, claims 1-3 lack novelty.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V (2 of 3)

The drying apparatus, according to D1, is equipped with an indicator for measuring the temperature in the drying chamber and/or of the air which departs from and/or is fed to the drying chamber. In addition, there are indicators which measure the temperature of the wood. As a rule, the temperature is measured inside the wood and, in certain embodiments, indicators which measure the temperature of the wood. In certain embodiments, there are also indicators which measure the moisture ratio of the wood. This is generally measured inside the wood. Often, the indicators are placed in the centre of the wood, but this is not necessary since account is taken of the placing of the indicators when regulating the drying process.

In order to measure the moisture in the wood, use is made, in certain embodiments, of a weighing machine where the difference between the measured weight and the weight of an ideal, dried wood gives the relevant moisture ratio. (See page 6, lines 5-27.)

Accordingly, claims 4-6 lack novelty.

The drying chamber, according to D1, includes at least one element disposed in the drying chamber for emitting thermal radiation at wavelengths at which the absorption of radiation by the water is great. A fan is provided for the circulation of air in the drying chamber, indicators are provided for sensing the temperature and/or moisture ratio in the wood and temperature and/or the relative humidity of the air in the drying chamber and that a control system (PLC system) is provided for controlling the elements and the fan. (See claim 8.)

Consequently, claim 15 lacks novelty.

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